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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,157	07/31/2003	Chan Won Park	2013P091	5452

8791 7590 03/27/2007  
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EXAMINER
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WONG, XAVIER S

ART UNIT	PAPER NUMBER
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2609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/633,157

Applicant(s)

PARK ET AL.

Examiner

Xavier Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31<sup>st</sup> July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 - 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31<sup>st</sup> July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 31<sup>st</sup> July 2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION*****Drawings***

Drawing figure 4A is objected to because the **PRNG\_value** input that is linked to the BL calculation unit 43 is mislabeled as *puing\_value*. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention: only the preambles of the claims are included.

Corrections are required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 – 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gaspar et al (U.S Patent 6,961,344 B1)** in view of **Bagchi et al (U.S Pub 2002/0057713 A1)**.

Regarding claims 1 and 6, **Gaspar et al** clearly show and disclose a home phone line network and method that utilizes media access control (MAC) to perform Carrier Sense with collision detection – CSMA/CD (column 2 lines 22-27 & column 3 lines 15-34) – comprising: MBL and BL counters that are maintained/stored in register/memory within the MAC (column 4 lines 60-67; claim 10; fig. 3B). Active stations act as MBL/BL calculation units that increment or decrement back-off levels for the MBL/BL counters (column 4 lines 60-63, column 5 lines 5-34).

However, **Gaspar et al** did not explicitly disclose the extraction of a current state, a data transmission priority, and a reference time signal to determine a final state of a frame.

In the same field of endeavor, **Bagchi et al** disclose a back-off function that is dependent on the desired and current payload/frame to collect statistical data (therefore, extracting data in a current state) encoding rates (paragraph 0317). The stations transmit back-off signals to indicate ordering (priority involved) information that determines new back-off levels to be used by the MBL/BL counters and to be put into a *TX\_PRI*, which represents the priority slot number, as a final state before retransmission commences (paragraphs 0169-170). Carrier Sense 1100 detects the starting and ending times of a valid frame transmission on the wire as a purpose to determine when frames are present on the channel/transmission medium, as well as being used to determine the presence of a Back-off Signal in a Signal Slot (paragraph 0163; figs. 30-33). A gap with end-of-frame *EOF* (time) signal (as a *do\_FBOS* signal) that takes *CS\_IFG* microseconds prior to the next CS frame transmission begins (paragraphs 0164 & 0169; fig. 31).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the extraction of a current state, a data transmission priority, and a reference time signal to determine a final state of a frame as taught by **Bagchi et al**, in the apparatus and method of **Gaspar et al**, in order to ensure the transmission of all frames safely to the destinations.

Regarding claim 2, **Gaspar et al** clearly show and disclose the claimed invention except the *do\_FBOS* signal is at the last section of the slot.

In the same field of endeavor, **Bagchi et al** disclose a gap with end-of-frame *EOF* (time) signal (as a *do\_FBOS* signal) which is located at the last 4 bytes of the transmission that takes *CS\_IFG* microseconds prior to the next CS frame transmission begins (paragraphs 0164 & 0169; fig. 31).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the a signal is at the last section of the slot as taught by **Bagchi et al**, in the apparatus of **Gaspar et al**, in order to determine the time for a frame to reach the final state – into the MBL/BL registers.

Regarding claim 3, **Gaspar et al** clearly show and disclose the claimed apparatus except the algorithm of handling normal and collision frames with MBL values: *the received frame is determined as a normal frame, if the MBL value MBL\_reg of a previous frame is 0, the MBL\_reg becomes 0, and if the MBL value MBL\_reg of the previous frame is not 0, the MBL value MBL\_reg is obtained by subtracting 1 from the MBL value MBL\_reg of the previous frame, after it is determined that the priority RxPRI and the MBL value MBL\_reg of the previous frame are the same, and when the received frame is determined as a collision frame, if the MBL value MBL\_reg of the previous frame is 0, the MBL value MBL\_reg is obtained by adding the MBL value MBL\_reg of the previous frame to the number of back-off signals of the received frame, and if the MBL value MBL\_reg of the previous frame is not 0, the MBL value MBL\_reg is obtained by subtracting 1 from the value which is obtained by adding the MBL value MBL\_reg of the previous frame to the number of back-off signals.*

In the same field of endeavor, **Bagchi et al** disclose an algorithm that teaches:

When the priority slots have no contenders/collision and previous MBL value is 0, then MBL value should be set to 0 {MBL[currentPriority] := 0};

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else if there are no collision and the MBL value of previous frame is not 0, then MBL is set to *previous MBL value minus 1* { $MBL[currentPriority] = \text{saturate}(0, nLevels-1, MBL[currentPriority]-1)$  in which psignals is the previous MBL value in this case} when priority and previous MBL value are the same {if (txPriority = currentPriority)}.

When there is a collision frame {if psignals > 0} and if previous MBL value is 0 {if  $MBL[currentPriority] = 0$ } then *MBL value is added to previous MBL value* { $MBL[currentPriority] := psignals$ ; in which  $0 + psignals := psignals$ };

else if there is a collision and previous MBL value is not 0, then MBL value is set to *previous MBL value plus number of back-off signals minus 1* { $MBL[currentPriority] = \text{saturate}(0, nLevels-1, MBL[currentPriority]+psignals-1)$ }. (All citations located in program code table in between paragraphs 0171 & 0172 on pgs. 14 & 15)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the algorithm to adjust BL values as taught by **Bagchi et al**, in the apparatus of **Gaspar et al**, in order to reduce error caused by frame collisions.

Regarding claim 4, **Gaspar et al** clearly show and disclose the claimed apparatus except the algorithm of handling normal and collision frames with BL values: *when the received frame is determined as a normal frame, if the BL value BL\_reg of a previous frame is 0, the BL value BL\_reg is set to 0, and if the BL value BL\_reg of the previous frame is not 0, the BL value BL\_reg is obtained by subtracting 1 from the BL value BL\_reg of the previous frame, after it is determined that a corresponding station is in a data transmission standby state and a priority RxPRI of the received frame is the same as a BL value BL\_reg of the previous frame; when the received frame is determined as*

*a collision frame, if a pseudo random number generator (PRNG) value generated in a PRNG circuit of a media access control (MAC) in the station is 0, the BL value BL\_reg of the previous frame becomes the BL value BL\_reg; when the received frame is determined as a collision frame, if the PRNG value is not 0 and the BL value BL\_reg of the previous frame is 0, the BL value BL\_reg is obtained by adding the BL value BL\_reg of the previous frame to the number of back-off signals that are observed prior to a corresponding back-off slot; and when the received frame is determined as a collision frame, if the PRNG value is not 0 and the BL value BL\_reg of the previous frame is not 0, the BL value BL\_reg is obtained by subtracting 1 from the value which is obtained by adding the BL value BL\_reg of the previous frame to the number of back-off signals observed prior to the PRNG value.*

In the same field of endeavor, **Bagchi et al** disclose:

When there is no collision {if (not sawCollision)} and the priority slot passed with no contenders (previous frame is 0), then BL value should be set to zero  
{BL[currentPriority] := 0};

else if there are previous frames transmitted successfully (previous BL frame is not 0), then BL should be set as *BL value of previous frame minus 1* {BL[currentPriority] := saturate(0,nLevels-1,BL[currentPriority]- 1)} while waiting for the Inter-frame gap period(IFG)/standby state to end and priority is the same as the previous frame {if (txPriority = currentPriority)}.

When there is a collision {if sawCollision}, a random signal slot generator will yield a back-off signal slot {signalSlot = integerRandom(nSignals)); and

if signalSlot (or considered as psignals in this case) generated is 0 {psignals := 0}, and previous BL value is 0, then BL value is set to BL value of previous frame {if backoffLevel = 0 then ... BL[currentPriority] := saturate(0, nLevels-1, tem), where tem is the signalSlot number generated};

else if signalSlot generated by random signal slot generator is not 0 {if psignals > 0} and previous BL value is not 0 {if backoffLevel > 0}, then BL value is set to *previous BL value plus number of back-off signals and then minus 1* prior to observing the random generator's value {BL[currentPriority] := saturate(0,nLevel-1,backoffLevel+psignals-1)}. (All citations located in program code table in between paragraphs 0171 & 0172 on pgs. 14 & 15)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the algorithm to adjust MBL values as taught by **Bagchi et al**, in the apparatus of **Gasper et al**, in order to reduce error caused by frame collisions.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gasper et al** (U.S Patent 6,961,344 B1) in view of **Bagchi et al** (U.S Pub 2002/0057713 A1), **Pasternak et al** (U.S Patent 6,760,305 B1) and the applicant's admitted prior art.

Regarding claim 5, **Gasper et al**, as modified by **Bagchi et al**, clearly show the claimed invention but did not explicitly disclose the slots can accommodate more than 5 bits to provide collision resolution to a maximum of 25 stations.

In the same field of endeavor, **Pasternak et al** disclose a 6-bit (more than 5 bits) representation of collision indication for each minislots (time slot) in upstream-downstream structures of a base station (col. 10 lines 17-20; figs. 5 & 11).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of having more than 5 bits to provide collision resolution as taught by **Pasternak et al**, in the apparatus of **Gasper et al** as modified by **Bagchi et al**, in order to achieve a balanced bandwidth transmission.

However, **Pasternak et al**, in view of **Gasper et al** and **Bagchi et al**, did not explicitly disclose the design supports a maximum of 25 stations.

Herein, the **applicants** clearly disclose the HomePNA network can connect a maximum of 25 stations (pg. 2 lines 17-23).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the teachings of the design supporting a maximum of 25 stations as taught by the **applicants**, in the apparatus of **Gasper et al** as modified by **Bagchi et al** and **Pasternak et al**, because it is well-known in the art on the subject of HomePNA.

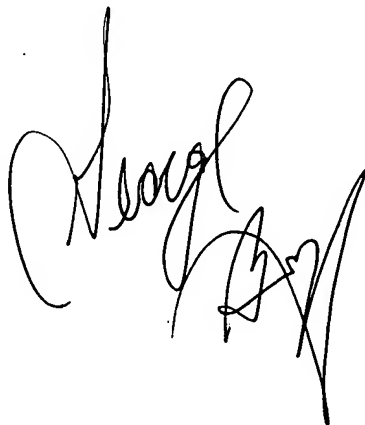
**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A.) **Holloway et al (U.S Patent 6,256,317 B1)** disclose a control logic for monitoring collisions of carrier sense signals to maintain a counter stack and stack-top. The logic is similar to the BL and MBL value operations that the applicants mention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier Wong whose telephone number is (571) 270-1780. The examiner can normally be reached on Monday through Friday 8 am - 5 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

A handwritten signature in black ink, appearing to read 'Rafael', with a stylized, elongated flourish extending from the bottom right.